



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Northwest Region  
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Refer to:  
OHB2002-0079-FEC

July 3, 2002

Richard Yarde  
Department of Energy  
Bonneville Power Administration  
P.O. Box 3621  
Portland OR 97208-3621

Re: Endangered Species Act Formal Section 7 Consultation and Magnuson-Stevens Act  
Essential Fish Habitat Consultation for the John Day River Watershed Restoration  
Program: 2002 Watershed Restoration Projects, John Day River Basin, Grant, Oregon.

Dear Mr. Yarde:

Enclosed is a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) that addresses the proposed John Day River (JDR) Watershed Restoration Program: 2002 Watershed Restoration Projects in Grant County, Oregon. NMFS concludes in this Opinion that the proposed actions are not likely to jeopardize Middle Columbia River (MCR) steelhead. This Opinion includes reasonable and prudent measures with terms and conditions that are necessary and appropriate to minimize the potential for incidental take associated with this project.

This document also serves as consultation on essential fish habitat (EFH) for chinook salmon under Public Law 104-267, the Sustainable Fisheries Act of 1996, as it amended the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

Questions regarding this Opinion should be directed to Eric Murray of my staff in the Oregon Habitat Branch, at 541.975.1835 ext. 222.

Sincerely,

*f. / Michael R. Crouse*

D. Robert Lohn  
Regional Administrator

cc: Jennifer O'Reilly - USFWS  
Tim Unterwegner - ODFW  
Shaun Robertson - CTWS



## BIOLOGICAL OPINION

**Refer to:** **OHB2002-0079-FEC**

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## **1. ENDANGERED SPECIES ACT**

### **1.1 Background**

The National Marine Fisheries Service (NMFS) received a letter from the Bonneville Power Administration (BPA) on March 27, 2002, requesting informal consultation on the John Day River Watershed Restoration Program: 2002 Watershed Restoration Projects, to be carried out by the Confederated Tribes of the Warm Springs (CTWS) at various locations in the John Day River (JDR) basin. The BPA requested concurrence with a finding that these projects were “not likely to adversely affect” (NLAA) Middle Columbia River (MCR) steelhead. The BPA proposes to fund these projects to improve fish habitat and passage conditions in the JDR basin, while ensuring that private landowners continue to receive allocated water for irrigation.

An attached biological assessment (BA) prepared by the CTWS described the proposed actions and their effects on MCR steelhead. On May 2, 2002, NMFS sent a letter to the BPA requesting additional information about these projects. The letter also stated that NMFS could not concur with the NLAA determination due to the likelihood that the proposed actions could result in take of juvenile MCR steelhead in the form of harassment, injury, or death.

The BPA and CTWS agreed to divide the proposed actions into those with less than a negligible likelihood of take, thus NLAA MCR steelhead, and those with a more than negligible likelihood of resulting in take and thus “likely to adversely affect” (LAA) MCR steelhead. On June 3, 2002, the BPA sent a letter requesting formal consultation on the proposed LAA projects. Those projects are the subject of this biological opinion (Opinion). The NLAA projects will be addressed in a separate concurrence letter (OHB2002-0079-IEC).

The MCR steelhead were listed under the ESA on March 25, 1999 (64 FR 14517). Protective regulations were issued for MCR steelhead under section 4(d) of the ESA on July 10, 2000 (65 FR 42422).

The objective of this Opinion is to determine whether the actions included in the John Day River Watershed Restoration Program: 2002 Watershed Restoration Projects are likely jeopardize the continued existence of MCR steelhead.

### **1.2 Proposed Action**

The proposed John Day Watershed Program 2002 projects include the following:

(1) Emmel return flow cooling irrigation system, (2) Lower Island diversion structure, (3) Ricco diversion structure, (4) Rice diversion structure, (5) Pike project infiltration gallery, and (6) Walker infiltration gallery. All of the proposed projects are irrigation diversion improvements or improvements to current irrigation systems. A brief description of each project type follows.

### Return Flow Cooling

An irrigation return flow cooling system has been proposed for the Emmel property located on the mainstem JDR, above Prairie City, Oregon. The proposed system will convert above-ground ditches returning irrigation water from the JDR or its tributaries to an underground system consisting of perforated PVC pipe. The pipes will collect excess irrigation water below ground, thereby reducing the accumulation of this water on the surface. This should lead to a reduction in heating of this water from solar radiation. This project will not involve any instream construction, and only minor riparian disturbance. Some sediment generated from this activity could reach the mainstem JDR or its tributaries.

### Permanent Lay-Flat Ditch Diversions

Permanent concrete diversion structures with lay-flat stanchions are proposed as an alternative to the gravel push-up berms created annually by heavy machinery to provide irrigation water at the Ricco, Lower Island, and Rice properties located near the mainstem JDR, above Prairie City, Oregon. The proposed structures consist of a concrete pad at riverbed grade, two sidewalls, a lay flat stanchion, and a fishway. A headgate structure diverts water to be used for irrigation. When the structure is not in use, the stanchions can be lowered to allow fish passage. As flows drop during the irrigation season, boards are placed in front of the stanchions to raise the level of water behind the structure to help maintain water flows into the irrigation ditches. The fishway allows fish passage when the boards are in place. The installation of this structure will improve fish passage at the site, especially during irrigation season.

### Infiltration galleries

Infiltration galleries are proposed at the Walker and Pike properties on the mainstem JDR, below the city of John Day, Oregon. These structures are proposed as an alternative to the annual gravel push-up berms created to provide irrigation water. Installation of the infiltration galleries will involve isolating the work area, digging a trench in the river bed, and installing one or more perforated collector pipes. The pipes are then covered with gravel. A system of PVC conveyance pipes connects the collector pipes to existing irrigation ditches. The installation of these systems requires instream construction, and some riparian disturbance. The irrigation systems have been designed to provide an amount of water for irrigation less than or equal to the legal water right existing for that diversion. The BA states that seeding and planting will be done at the project sites to reduce erosion and increase the rate of vegetation recovery.

## **1.3 Biological Information**

The MCR steelhead evolutionarily significant unit (ESU) was listed as threatened under the ESA by NMFS on March 25, 1999 (64 FR 14517). Protective regulations for MCR steelhead were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42423). Biological information concerning the MCR steelhead is found in Busby et al. (1996). The current status of the MCR steelhead, based upon their risk of extinction, has not significantly improved since the species was listed.

The JDR is the largest river system in the range of MCR steelhead that is free of dams. There is currently no artificial propagation of steelhead in the system, and runs are composed completely of native stocks. However, there is some straying of hatchery fish into the JDR system from the Columbia River (Unterwagner and Gray 1997). The Oregon Department of Fish and Wildlife (ODFW) estimates yearly returns of adult steelhead to the JDR basin from 3,900 to 36,400, with estimated escapement averaging 13,988 adults since 1987. NMFS (1997) citing Chilcote (1997), states that recent MCR steelhead redd counts conducted in established index areas throughout the John Day River basin suggest universal declines in redd abundance ranging from -0.9 to -5.6% over the past several years.

The JDR and its tributaries provide spawning, rearing, and migratory habitat for both adult and juvenile life stages of MCR steelhead. Adult MCR steelhead enter the Columbia River beginning in the spring and migrate upriver through the summer, fall, and winter, seeking their tributary of origin. By early the following spring, the adults have reached their natal streams and spawn in gravel redds/nests from March to early June. Deposited eggs usually hatch by the July of the same year. The resulting juveniles will spend from one to four years rearing to smolt size, at which time they will begin their migration to the ocean. Juvenile steelhead are expected to be rearing in the project areas during all phases of this project.

Essential features of the adult spawning, juvenile rearing, and adult and juvenile migratory habitat for this species are: Substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food (juvenile only), riparian vegetation, space, and safe passage conditions. The essential features that the proposed project may affect are: Substrate, water quality, water temperature, water velocity, cover/shelter, food, and riparian vegetation.

#### **1.4 Evaluating Proposed Actions**

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NMFS must determine whether the action is likely to jeopardize the listed species. This analysis involves the initial steps of defining the biological requirements and current status of the listed species, and evaluating the relevance of the environmental baseline to the species' current status. Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmonid's life stages that occur beyond the action area. If NMFS finds that the action is likely to jeopardize, NMFS must identify reasonable and prudent alternatives for the action. For the proposed action, NMFS' jeopardy analysis considers direct or indirect mortality of fish attributable to the action.

### **1.4.1 Biological Requirements**

The first step in the methods NMFS uses for applying the ESA section 7(a)(2) to listed MCR steelhead is to define the species' biological requirements that are most relevant to each consultation. NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NMFS starts with the determinations made in its decision to list MCR steelhead for ESA protection and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for MCR steelhead to survive and recover to naturally-reproducing population levels, at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment. For this consultation, the biological requirements are improved habitat characteristics that function to support successful adult and juvenile migration, spawning and rearing.

MCR steelhead survival in the wild depends on the proper functioning of certain ecosystem processes, including habitat formation and maintenance. The restoration of improperly functioning habitat to a more properly functioning condition will likely lead to improved survival and recovery of MCR steelhead. In conducting analyses of habitat altering actions, NMFS defines the biological requirements in terms of a concept called Properly Functioning Condition (PFC) and applies a "habitat" approach to its analysis (NMFS 1999). The current status of MCR steelhead, based on their risk of extinction, has not improved much since the species was listed.

### **1.4.2 Environmental Baseline**

The current range-wide status of the identified ESU is found in Busby *et al.* (1995, 1996). The identified action will occur within the range of MCR steelhead. The defined action area is the area that is directly and indirectly affected by the proposed action. The direct effects occur at the project site, and may extend upstream or downstream based on the potential for impairing fish passage, stream hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect effects may occur throughout the watersheds where the proposed projects sites are located, where actions described in this Opinion lead to additional activities, or affect ecological functions, contributing to stream degradation. As such, the action area for the proposed activities include the immediate portions of the watersheds containing the project sites affected temporarily or in the long term, by the proposed project.. This includes the aquatic and associated riparian habitats affected by the instream construction activities extending upstream to the edge of disturbance, and downstream 0.5 mile.

In general, the current status of MCR steelhead populations is the result of several long-term, human-induced factors (*e.g.* habitat degradation, water diversions, hydropower dams) that serve to exacerbate the adverse effects of natural environmental variability from such factors as

drought, floods, and poor ocean conditions. Within the action area, habitat degradation has occurred from timber harvest, road construction, water diversions, livestock grazing, and agriculture.

Environmental baseline conditions within the action area were evaluated for the subject actions at the project level and watershed scales. The results of this evaluation, based on the “matrix of pathways and indicators” (MPI) described in *Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996), follow. This method assesses the current condition of instream, riparian, and watershed factors that collectively provide properly functioning aquatic habitat essential for the survival and recovery of the species.

The proposed project sites are all located in various watersheds within the Upper John Day River (UJDR) subbasin. For these watersheds, 13 of the 19 habitat indicators in the MPI are rated as “functioning at risk.” These are: Nutrients, large woody debris, large pools, off-channel habitat, refugia, width\depth ratio, streambank condition, floodplain connectivity, change in peak/base flow, drainage network increase, disturbance history, riparian habitat conservation areas, and disturbance regime. Six of the 19 are rated as “not properly functioning.” These are: Temperature, sediment, physical barriers, substrate embeddedness, pool frequency and quality, and road density and location. None of the habitat indicators were rated as properly functioning.

Environmental baseline conditions at the project sites vary somewhat, but there are many common elements. Elevated summer temperatures is a limiting factor for the production of salmonids in the JDR basin. The JDR is listed on the Clean Water Act (CWA) section 303(d) list for Oregon for temperature from the confluence of the MFJDR and North Fork John Day River (NFJDR) to Reynolds Creek. This area encompasses all of the proposed project sites. Removal of riparian vegetation, resulting in loss of stream shade, and a reduction of stream flow due to diversion of water for irrigation are the primary factors resulting in elevated stream temperatures. Rearing juvenile MCR steelhead will often seek thermal refuge in tributary streams during the summer (T. Unterwegner, ODFW, personal comm.).

Fish passage problems are found throughout the JDR basin, as well as in some of the individual project areas. The annual construction of push-up berms of stream bottom material is common to ensure delivery of irrigation water. The size of these berms vary, depending on conditions and channel size at the irrigation diversion point. Some berms, especially those in the mainstem JDR can be very large, six to seven feet high, and spanning the entire channel, and require up to 50 dump truck loads of gravel to construct. (K. Delano, Grant County Soil and Water Conservation District, personal comm.) These berms often create a passage barrier for all life stages of MCR steelhead. The streamflow reduction these structures cause can further exacerbate the fish passage problem. The proposed projects, with the exception of the Emmel return flow cooling system, will eliminate the need for annual construction of the berms. In addition to the push-up berms, improperly installed culverts also create fish passage barriers at many locations in the UJDR subbasin. Projects addressed in the concurrence letter (OHB2002-0079-IEC), will improve fish passage at two culvert sites.



Reduction in streamflow during the irrigation season occurs in the JDR basin including the individual action areas. Many tributary streams as well as the mainstem JDR have a large portion of streamflow removed for irrigation. As stated above, this can lead to fish passage problems, elevated stream temperature, and a general reduction in the area available for rearing juvenile MCR steelhead. According to the BA, "All project areas are suspected to have altered hydrograph function. All of the mainstem JDR projects are within a stream reach on the 303(d) list for flow modification."

## **1.5 Analysis of Effects**

### **1.5.1 Effects of Proposed Action**

The effects determination in this Opinion was made using a method for evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them. The effects of actions are expressed in terms of the expected effects (*e.g.* restore, maintain, or degrade) on aquatic habitat factors in the action area. For the proposed actions, all conditions for watersheds in the UJDR subbasin will be maintained in the long term. NMFS does expect some negative effects in the short term. Specific effects are discussed below.

Potential short-term negative effects to MCR steelhead will result from these projects. Increased sediment levels can be expected to occur due to the instream work. Short-term increases in turbidity could result in temporary reduction in feeding efficiency for juvenile steelhead within the action areas. These activities could also result in harassment of juvenile steelhead, because this work could interrupt daily activities such as sheltering. Isolation of the work areas will cause rearing juvenile MCR steelhead to leave the construction area. Once these juvenile fish are frightened from cover and swim into open water, they become more susceptible to predation from larger fish and avian predators. Increased sedimentation may also lead to increased embeddness of spawning substrates downstream of the project. Not all of the project sites have MCR spawning habitat located downstream. Instream work scheduled for these projects will take place during the ODFW in-water window for the area (July 15 - August 15). Due to the typically low flows present in the individual project areas during this time, sedimentation rates are expected to be minimal. Disturbance of riparian vegetation could result from operation of heavy machinery near the stream and could lead to decreased shade, increased water temperatures, and decreased streambank stability until riparian vegetation is re-established. Access paths to the proposed projects have been planned to avoid disturbing riparian vegetation to the greatest degree possible. There is also the potential for fuel or other contaminant spills associated with use of heavy equipment in or near the stream.

An interrelated effect of installing these diversion structures is the removal of water for irrigation purposes. For the infiltration galleries, water withdrawal for irrigation would typically remove 1/15 to 1/20 of stream flow during the lowest flow periods of August and September. (K. Sullivan, Oregon Water Resources, pers.comm.). Although removal of water in the JDR system often has adverse effects to fish, the amount of water removed in these situations is not likely to result in any additional adverse impacts to MCR steelhead. This is due in large part to the fact

that rearing of MCR steelhead does not occur at or downstream of the infiltration gallery sites on the mainstem JDR during the low flow period. The replacement of gravel push-up berms with the infiltration galleries will lead to improved fish passage conditions. The improved passage conditions will benefit both out-migrating MCR steelhead smolts, and juvenile rearing MCR steelhead swimming upstream to find cool water in the spring.

At the other irrigation diversion improvement sites, more adverse effects from the removal of water under baseline conditions would be greater than at the mainstem sites. Some of these sites are located in tributary streams with very low flows during the summer months. In these cases, the removal of water for irrigation may dewater these streams. This can lead to stranding or death of MCR steelhead that may rear in these streams. However, many of the streams may naturally experience periods of subsurface or no flow during the summer months regardless of the removal of water for irrigation. The proposed infiltration galleries have been designed to prevent any additional instream flow diminishment over baseline conditions. By removing the passage barrier created by the annual gravel push-up berm and allowing fish passage at the site, juvenile MCR steelhead will have improved access to cooler headwater areas of these streams that may have continual flow throughout the summer months.

The diversion improvement structures will be screened to NMFS criteria and the operation of these screens is monitored by the ODFW.

The return flow irrigation system should result in decreased water temperatures of irrigation water returning to the JDR and its tributaries. By allowing this water to remain underground, exposure to solar radiation is kept to a minimum. The infusion of cool water into the mainstem JDR and its tributaries resulting from this project should provide a beneficial effect to rearing juvenile MCR steelhead at the project site and for a short distance downstream.

### **1.5.2 Cumulative Effects**

“Cumulative effects” are defined in 50 CFR 402.02 as those effects of “future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation.” The action area is defined as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action” (50 CFR 402.02). The action area for this consultation, therefore is the streambed and streambanks, including riparian areas project sites located on private land in the UMFJDR and UJDR subbasins. In addition, a short area upstream (approximately 50 feet) and downstream (approximately 0.5) of the projects sites are considered part of the action area.

There are several actions occurring on private land in these subbasins that are reasonably certain to continue in the future. These include ranching, timber harvest, and withdrawal of water for irrigation.

Significant improvement in MCR steelhead reproductive success outside of federally-administered land is unlikely without changes in grazing, agricultural, and other practices

occurring within these non-Federal riparian areas in the JDR basin. Improvements to irrigation diversions to improve fish passage is occurring at several locations on private land within the JDR basin. NMFS is not aware of any other specific future actions which are reasonably certain to occur on non-Federal lands.

## **1.6 Conclusion**

NMFS has determined that, when the effects of the proposed actions addressed in this Opinion are added to the environmental baseline and cumulative effects occurring in the action area, they are not likely to jeopardize the continued existence of MCR steelhead. NMFS believes that the instream construction at the project sites will cause some minor short-term increases in stream turbidity and sedimentation rates in the project areas in the UJDR subbasin. The short-term negative impacts due to sedimentation in the various watersheds will be offset in the long term by improvements in fish passage at many of the project sites.

## **1.7 Conservation Recommendations**

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of proposed actions on listed species or to develop additional information. NMFS has no additional conservation recommendations regarding the action addressed in this Opinion.

## **1.8 Reinitiation of Consultation**

Reinitiation of consultation is required if: (1) The action is modified in a way that causes an effect on the listed species that was not previously considered in the BA and this Opinion, (2) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered, or (3) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR. 402.16). To reinitiate consultation, the BPA must contact the Habitat Conservation Division, Oregon Habitat Branch, NMFS, and refer to OHB2002-0079-FEC.

## **2. INCIDENTAL TAKE STATEMENT**

Section 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species by annoying it to such an extent as to significantly alter normal behavior patterns which include, but are not limited to,

breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

## **2.1 Amount or Extent of Take**

NMFS anticipates that the proposed action is reasonably certain to result in incidental take of species listed in this Opinion because of detrimental effects from increased sediment (non-lethal). It is also possible that some incidental take may result from the instream work (lethal), although this is expected to be minimal.

Effects of actions such as minor sedimentation are unquantifiable in the short term and are not expected to be measurable as long-term harm to habitat features or by long-term harm to salmonid behavior or population levels. Therefore, even though NMFS expects some low level incidental take to occur due to the proposed actions covered by this Opinion, best scientific and commercial data available are not sufficient to enable NMFS to estimate the specific amount of incidental take to the species itself. Additionally, because the distribution of rearing MCR steelhead located at the sites where instream construction will occur is dependant on many factors, including stream flow levels and temperature, the amount of take associated with these activities can not be quantified. In instances such as these, NMFS designates the expected level of take as “unquantifiable.” Based on the information in the biological assessment, NMFS anticipates that an unquantifiable amount of incidental take could occur as a result of the habitat altering actions covered by the Opinion. The extent of the take includes the aquatic and associated riparian habitats affected by the instream construction activities extending upstream to the edge of disturbance, and downstream 0.5 mile.

## **2.2 Effect of the Take**

In this Opinion, NMFS has determined that the level of anticipated take is not likely to result in jeopardy to MCR steelhead when the reasonable and prudent measures are implemented.

## **2.3 Reasonable and Prudent Measures**

NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize the likelihood of take of MCR steelhead resulting from the actions covered by this Opinion. The BPA shall:

1. Minimize the likelihood of incidental take resulting from instream construction activities by implementing these projects in such a way that the direct and indirect effects of in-channel or near-channel heavy equipment use on spawning adult MCR steelhead, steelhead eggs, pre-emergent fry, and rearing juveniles are avoided or minimized. The project design and implementation will be carried out in such a manner to minimize the impacts to MCR steelhead and their habitat.
2. Minimize the likelihood of incidental take resulting from construction activities in or near watercourses by ensuring that an effective spill prevention, containment, and control plan is developed, implemented, and maintained to avoid or minimize point-source pollution both into and within watercourses over the short term and the long term.
3. Complete a comprehensive monitoring and reporting program to ensure implementation of requirements found in this Opinion.

## **2.4 Terms and Conditions**

To be exempt from the prohibitions of section 9 of the ESA, the BPA must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To implement Reasonable and Prudent Measure #1 (project design and implementation), the BPA shall ensure that:
  - a. Minimum area. Construction impacts will be confined to the minimum area necessary to complete the project.
  - b. In-water work. All work within the active channel that could contribute sediment or toxicants downstream will be completed within the ODFW approved in-water work period (July 15 - August 15). Work will be completed from the bank to minimize disturbance of the stream bottom wherever possible.
  - c. Work period extensions. Extensions of the in-water work period, including those for work outside the wetted perimeter of the stream, but below the ordinary high water mark must be approved by biologists from NMFS.
  - d. Isolation of in-water work area. During in-water work, if listed fish may be present, including incubating eggs or juveniles, and the project involves either significant channel disturbance or use of equipment instream, ensure that the work area is well isolated from the active flowing stream within a coffer dam (made out of sandbags, sheet pilings, inflatable bags, etc.), or similar structure, to minimize the potential for sediment entrainment.
  - e. Water pumped from the work isolation area. This will be discharged into an upland area providing over ground flow before returning to the creek. Discharge will occur so that it does not cause erosion. Discharges into potential fish spawning areas or areas with submerged vegetation are prohibited.

- f. Fish passage. Work will not inhibit passage of any adult or juvenile salmonid species throughout the construction period or after project completion. All culvert and road designs must comply with ODFW guidelines and criteria for stream-road crossings with appropriate grade controls to prevent culvert failure due to changes in stream elevation. Channel modifications which could adversely affect fish passage, such as by increasing water velocities, are not authorized by this Opinion.
- g. Temporary access roads. Temporary access roads will be designed as follows:
  - i. Existing roadways or travel paths will be used whenever possible.
  - ii. No stream crossings will occur at known or suspected spawning areas or within 1,000 feet upstream of such areas where impacts to spawning areas may occur.
  - iii. Where stream crossings are essential, the crossing design will accommodate reasonably foreseeable risks (*e.g.*, flooding and associated bedload and debris) to prevent diversion of streamflow out of the channel and down the road in the event of crossing failure.
  - iv. Vehicles and machinery must cross riparian areas and streams at right angles to the main channel wherever possible.
  - v. The number of stream crossings is minimized.
- h. Cessation of work. All project operations, except efforts to minimize storm or high flow erosion, will cease under high flow conditions that may result in inundation of the project area.
- i. Pre-construction activities. Before significant alteration of the action area, the following actions will be accomplished:
  - i. Boundaries of the clearing limits associated with site access and construction are flagged to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.
  - ii. The following erosion control materials are onsite:
    - (1) A supply of erosion control materials (*e.g.*, silt fence and straw bales) is on hand to respond to sediment emergencies. Sterile straw or hay bales will be used when available to prevent introduction of weeds.
    - (2) An oil absorbing, floating boom is available on-site during all phases of construction whenever surface water is present.
  - iii. All temporary erosion controls (*e.g.*, straw bales, silt fences) are in place and appropriately installed downslope of project activities within the riparian area. Effective erosion control measures will be in place at all times during the contract, and will remain and be maintained until permanent erosion control measures are effective.
- j. Heavy Equipment. Heavy equipment use will be restricted as follows:
  - i. When heavy equipment is required, the equipment having the least impact will be used (*e.g.*, minimally sized, rubber tired).

- ii. Excavators will have a properly guarded belly pan for pioneering type of work in rough terrain.
- iii. Heavy equipment will be fueled, maintained and stored as follows:
  - (1) All equipment that is used for instream work will be cleaned before conducting operations below the bankfull elevation. External oil and grease will be removed, along with dirt and mud. No untreated wash and rinse water will be discharged into streams and rivers without adequate treatment.
  - (2) Vehicle staging, maintenance, refueling, and fuel storage areas will be located outside riparian areas, at least 300 feet from flowing streams
  - (3) All vehicles operated within riparian areas of any stream or water body will be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected will be repaired before the vehicle resumes operation.
  - (4) When not in use, vehicles will be stored in the vehicle staging area, away from any watercourse.
- k. Site preparation. Site preparation, including removal of stream materials, topsoil, surface vegetation and major root systems, will be completed in the following manner:
  - i. Any instream large wood or riparian vegetation moved or altered during construction will stay on the site or be replaced with a functional equivalent.
  - ii. Tree removal will be mitigated for onsite by a 2:1 replanting ratio.
  - iii. Whenever the project area is to be revegetated or restored, native channel material, topsoil and native vegetation removed for the project should be stockpiled for redistribution on the project area.
- l. Earthwork. Earthwork, including drilling, blasting, excavation, dredging, filling and compacting, will be completed in the following manner:
  - i. Boulders, rock, woody materials and other natural construction materials used for the project must be obtained from outside the 100-year floodplain.
  - ii. Material removed during excavation will only be placed in locations where it cannot enter streams or other water bodies.
  - iii. All exposed or disturbed areas will be stabilized to prevent erosion.
    - (1) Areas of bare soil within 150 feet of waterways, wetlands or other sensitive areas will be stabilized by native seeding,<sup>1</sup> mulching, and placement of erosion control blankets and mats, if applicable, quickly as reasonable after exposure, but within seven days of exposure.

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<sup>1</sup> By Executive Order 13112 (February 3, 1999), Federal agencies are not authorized to permit, fund or carry out actions that are likely to cause, or promote, the introduction or spread of invasive species. Therefore, only native vegetation that is indigenous to the project vicinity, or the region of the state where the project is located, shall be used.

- (2) Seeding outside the growing season will not be considered adequate nor permanent stabilization.
- iv. All erosion control devices will be inspected before, during, and after construction to ensure that they are working adequately.
- v. If inspection shows that the erosion controls are ineffective, work crews will be mobilized immediately, during working and off-hours, to make repairs, install replacements, or install additional controls as necessary.
- vi. Erosion control measures will be judged ineffective when turbidity plumes are evident in waters occupied by listed salmonids during any part of the year.
- vii. If soil erosion and sediment resulting from construction activities are not effectively controlled, the engineer will limit the amount of disturbed area to that which can be adequately controlled.
- viii. Sediment will be removed from sediment controls once it has reached 1/3 of the exposed height of the control. Whenever straw bales are used, they will be staked and dug into the ground 5 inches (12 cm). Catch basins will be maintained so that no more than 6 inches (15 cm) of sediment depth accumulates within traps or sumps.
- ix. Sediment-laden water created by construction activity will be filtered before it leaves the right-of-way or enters a stream or other water body. Silt fences or other detention methods will be installed as close as reasonable to culvert outlets to reduce the sediment entering aquatic systems.
- m. Site restoration. Site restoration and cleanup, including protection of bare earth by seeding, planting, mulching and fertilizing, will be done in the following manner:
  - i. All damaged areas will be restored to pre-work conditions including restoration of original streambank lines, and contours.
  - ii. All exposed soil surfaces, including construction access roads and associated staging areas, will be stabilized at finished grade with mulch, native herbaceous seeding, and native woody vegetation before October 1. On cut slopes steeper than 1:2, a tackified seed mulch will be used so that the seed does not wash away before germination and rooting occurs. In steep locations, a hydro-mulch will be applied at 1.5 times the normal rate.
  - iii. Disturbed areas will be planted with native vegetation specific to the project vicinity or the region of the state where the project occurs, and will comprise a diverse assemblage of woody and herbaceous species.
  - iv. Plantings will be arranged randomly within the revegetation area.
  - v. All plantings will be completed before June 1 of the following Spring.
  - vi. No herbicide application will occur within 100-year floodplain as part of this permitted action. Mechanical removal of undesired vegetation and root nodes is permitted.
  - vii. No surface application of fertilizer will be used within 50 feet of any stream channel as part of this permitted action.



- viii. Plantings in areas disturbed by construction activities will achieve an 80 percent survival success after three years.
      - (1) If this success standard has not been achieved after three years, the BPA will submit an alternative plan to the NMFS. The alternative plan will address temporal loss of function.
      - (2) Plant establishment monitoring will continue and plans will be submitted to the BPA until site restoration success has been achieved.
  - n. Project design. The project will be designed to ensure that impacts to natural resources have been avoided, minimized and mitigated.
    - i. The design of the proposed irrigation diversion structures enables the irrigators to comply with all Oregon Administrative Rules and Oregon Revised Statutes promulgated by the Oregon Water Resources Department (OWRD) as they relate to rate and duty of water use. "Rate and duty of water" means quantity of water expressed in cfs (rate) and the total volume of water expressed in acre feet (duty) as allowed in the water use permit. The responsibility for ensuring compliance with water rights laws rests with the OWRD.
    - ii. Project design shall include the installation of a totalizing flow meter device on all diversion structures for which installation of this device is possible.
    - iii. Diversion structures shall be screened to meet NMFS criteria.
- 2. To implement reasonable and prudent measure #2 (spill prevention, containment, and control plan), the BPA shall ensure that:
  - a. Pollution and erosion control plan. A Pollution and Erosion Control Plan (PECP) will be developed for each authorized project to prevent point-source pollution related to construction operations. The PECP will contain the pertinent elements listed below and meet requirements of all applicable laws and regulations.
    - i. Methods that will be used to prevent erosion and sedimentation associated with access roads, stream crossings, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations and staging areas.
    - ii. Methods that will be used to confine and remove and dispose of excess concrete, cement and other mortars or bonding agents, including measures for washout facilities.
    - iii. A description of the hazardous products or materials that will be used, including inventory, storage, handling, and monitoring.
    - iv. A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures that will be available on site, proposed methods for disposal of spilled materials, and employee training for spill containment.

- v. Measures that will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into a stream during construction operations will be removed in a manner that has a minimum impact on the streambed and water quality.
- 3. To implement Reasonable and Prudent Measure #3 (monitoring and reporting), the BPA shall submit a report by March 1 of the following year to NMFS describing the previous year's activities related to this project. This report will consist of the following information:
  - a. Project identification.
    - i. Project name,
    - ii. Project location by 5<sup>th</sup> field hydrological unit code (HUC) and lat long,
    - iii. Starting and ending dates for work completed, and
    - iv. The BPA contact person.
  - b. Isolation of in-water work area. All projects involving isolation of in-water work areas must include a report with the following information:
    - i. The name and address of the CTWS fish biologist in charge of the project,
    - ii. Methods used to isolate the work area and minimize disturbances to ESA-listed species, and
    - iii. Stream conditions before and following placement and removal of barriers.
  - c. Pollution and erosion control. A summary of all pollution and erosion control inspection reports, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.
  - d. Site restoration. Summary of the following conditions:
    - i. Log and rock structure repair,
    - ii. Planting composition and density,
    - iii. Summary of planting and seeding efforts, and
    - iv. A narrative assessment of the project's effects on natural stream function.
  - e. Infiltration gallery design and operation. Answers to the following questions:
    - i. Why were infiltration galleries chosen for the proposed sites?
    - ii. What effects to MCR steelhead and their spawning habitat resulted from the infiltration gallery?
    - iii. If the gallery became plugged, how was it cleaned?
    - iv. Did the stream where the gallery is installed goes sub-surface during the irrigation season, if so, for how long? What remedies were implemented to address this matter?
    - v. How did the gallery affect hydrology and channel morphology at the proposed site?
  - f. Fish passage structures. A summary of the effectiveness of fish passage structures provided at the diversion improvement sites
  - g. The annual report will be submitted to:

Branch Chief - Portland  
National Marine Fisheries Service  
Attn: OSB2002-0079-IEC  
525 NE Oregon Street, Suite 500  
Portland, OR 97232

- h. NOTICE. If a dead, injured, or sick endangered or threatened species specimen is found, initial notification must be made to the:

National Marine Fisheries Service Law Enforcement Office  
Vancouver Field Office  
600 Maritime, Suite 130  
Vancouver, Washington 98661  
phone: 360/418-4246.

Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. Besides the care of sick or injured endangered and threatened species, or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence with the specimen is not unnecessarily disturbed.

### **3. ESSENTIAL FISH HABITAT**

#### **3.1 Background**

The objective of the essential fish habitat (EFH) consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

#### **3.2 Magnuson-Stevens Fishery Conservation and Management Act**

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NMFS on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of EFH: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NMFS shall provide conservation recommendations for any Federal or state Activity that may adversely affect EFH;
- Federal agencies shall within 30 days after receiving conservation recommendations from NMFS provide a detailed response in writing to NMFS regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NMFS, the Federal agency shall explain its reason for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

### **3.3 Identification of EFH**

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: Chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

### **3.4 Proposed Actions**

The proposed action is detailed above in section 1.2 of the ESA portion of this Opinion. The action area includes the UMFJDR watershed. This area has been designated as EFH for various life stages of chinook salmon.

### **3.5 Effects of Proposed Action**

As described in detail in the ESA portion of this consultation, the proposed activities may result in detrimental, short-term, adverse effects to a variety of habitat parameters.

### **3.6 Conclusion**

NMFS believes that the proposed action may adversely affect the EFH for chinook salmon.

### **3.7 EFH Conservation Recommendations**

Pursuant to Section 305(b)(4)(A) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. In addition to conservation measures proposed for the project by the BPA, all of the Reasonable and Prudent Measures and the Terms and Conditions contained in Section 2.4 of the ESA portion of this Opinion are applicable to salmon EFH. Therefore, NMFS incorporates each of those measures here as EFH conservation recommendations.

### **3.8 Statutory Response Requirement**

The Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the BPA to provide a written response to NMFS' EFH conservation recommendations within 30 days of its receipt of this letter. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. If the response is inconsistent with NMFS' conservation recommendations, the reasons for not implementing the BPA shall explain its reasons for not following the recommendations.

### **3.9 Supplemental Consultation**

The BPA must reinitiate EFH consultation with NMFS if either the action is substantially revised or new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600.920).

## **4. LITERATURE CITED**

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion in addition to the BA and additional information requested by NMFS and provided by the BPA and CTWS..

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